

REMARKS

Claims 1-20 are pending in the case, of which claims 1, 12 and 17 are independent claims. Claim 15 has been amended herein. No new matter has been presented.

Objection to the Drawings

The drawings were objected to for including the reference numeral 15. Formal drawings were submitted for this application of August 27, 2003. None of those drawings include a reference numeral 15. As such, this objection is moot.

Claim Objections

Claim 15 was objected to for reciting "the slots" because "slots" were not recited in claim 12. Claim 15 has been amended to depend from claim 14 which does recite slots. Thus, the objection to claim 15 has been overcome.

Claim Rejections

Claims 1, 4-9, 13, 15-16 and 18-19 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,645,177 ("Shearn"). Claims 2-3, 10-11, 13 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shearn. Applicants respectfully traverse all of these rejection because Shearn fails to teach or suggest a device, apparatus, or method that may determine the displacement of a plunger rod from a fiducial reference position.

Claims 1-11

Claim 1 is directed to a displacement sensor for a substance dispensing device that includes, *inter alia*, a processor for determining a displacement of a plunger rod relative to a fiducial reference position. Such a processor is neither taught nor suggested by Shearn.

The teachings of Shearn are limited to plunger driver system that may determine whether or not a plunger is moving. The motion of the plunger is determined by monitoring the motion of markers 58 (col. 8, lines 6-33). In particular, "[a]s the syringe

plunger travels along the shaft 54, equally spaced light and dark signals are detected by the optoelectronics switch 74. The timing of these signals can be used by a control system to confirm that the plunger is moving at the correct rate" (col. 8, lines 20-24, emphasis added). The rate of motion of the plunger, however, does not teach or suggest determining a displacement of a plunger rod relative to a fiducial reference position as recited in claim 1. Thus, Shearn does not teach or suggest each and every element of recited in claim 1. Claim 1 is patentable over Shearn.

Claims 2-11 depend from claim 1 and, therefore, are patentable for at least the same reason.

Claims 12-16

Claim 12 is directed to a dispensing apparatus that includes, *inter alia*, a processor for determining a displacement of a plunger rod relative to a fiducial reference position. As discussed above, Shearn does not teach an apparatus that includes a processor for determining a displacement of a plunger rod relative to a fiducial reference position. Claim 12, therefore, is patentable over Shearn.

Claims 13-16 depend from claim 12 and, therefore, are patentable for at least the same reason.

Claims 17-20

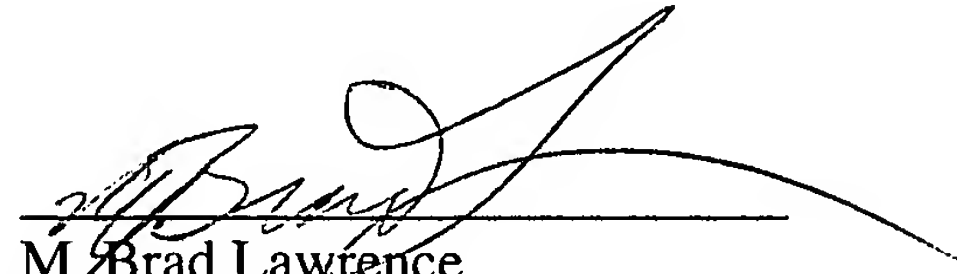
Claim 17 is directed to a method for measuring a rate of dispensing a substance by means of dispenser having a piston that includes, *inter alia*, a step of determining a displacement of a plunger rod relative to a fiducial reference position. As discussed above, Shearn does not teach or suggest a method that includes a step of determining a displacement of a plunger rod relative to a fiducial reference position. Claim 17, therefore, is patentable over Shearn.

Claims 18-20 depend from claim 17 and, therefore, are patentable for at least the same reasons.

Conclusion

Applicant respectfully requests that the examiner reconsider this application in view of all of the art. Applicant submits that the present application is in condition for allowance and early notice to that effect is respectfully solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "M. Brad Lawrence", is written over a horizontal line.

M. Brad Lawrence
Registration No. 47,210
Attorney for the Applicants

BROMBERG & SUNSTEIN LLP
125 Summer Street
Boston, MA 02110-1618
(617) 443-9292

01062/00D78 384227.1